STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

DEPARTMENT OF TRANSPORTATION
ENGINEERING SERVICE CENTER
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METHOD OF TEST FOR REFLECTANCE OF HIGHWAY REFLECTOR BUTTONS (OPTICAL REQUIREMENTS)

CAUTION: Prior to handling test materials, performing equipment setups, and/or conducting this method, testers are required to read "**SAFETY AND HEALTH**" in Section I of this method. It is the responsibility of the user of this method to consult and use departmental safety and health practices and determine the applicability of regulatory limitations before any testing is performed.

A. SCOPE

This method covers the procedure for determining the reflectance of highway reflector buttons measured under standardized test conditions.

B. APPARATUS

The apparatus used in this test shall conform with the requirements of ASTM Designation: E 809. Sample mounting fixtures must be fabricated.

C. CONTROL FACTORS

1. A corridor or "light tunnel," with a minimum 33 m length is required for this test. The entire area of the light tunnel and all objects or equipment in the area shall be painted a flat, nonreflective black.

2. The 0° reading on the goniometer shall designate the 0° incident light position as measured on a horizontal plane.

3. The reflector button mounting plate shall be placed perpendicular to the light beam in the vertical plane and at 0° incident light shall be 90° to the light beam in the horizontal plane.

4. Reflector buttons with diameters of 41 mm, or larger, shall be tested at 30 m. Reflector buttons with diameters less than 41 mm shall be tested at 15 m.

5. The reflectance value for all buttons shall be taken with a single button for the 0° angle reading. The same applies to the 20° angle readings with the exception of the 13-mm diameter buttons. In this instance, the sample is divided into groups of 19 buttons each. The 19 buttons shall be placed in a cluster arrangement consisting of 6 and 12 buttons set symmetrically around a central button. The configuration has radii of 19 and 38 mm, respectively, from center to center. The readings for each cluster, 20° right and left, shall constitute the entire light reflectance of all 19 buttons.

D. PREPARATION OF SPECIMEN

Wipe the buttons clean and free from smudges. Exercise care to prevent scratching the buttons in sampling or handling.

E. CALCULATIONS

From the readings obtained, calculate the percent reflectance as follows:

Percent Reflectance = (RL / IL) x 100

Where:

RL = The measured reflected light of the reflector button

IL = The measured incident light

F. PRECAUTIONS

Adhere strictly to the procedure as outlined to obtain consistent and comparable results.

G. REPORTING OF RESULTS

Report test results on Form TL-0610.

H. SAFETY AND HEALTH

Prior to handling, testing or disposing of any waste materials, testers are required to read: Part A (Section 5.0), Part B (Sections: 5.0, 6.0 and 10.0) and Part C (Section 1.0) of Caltrans Laboratory Safety Manual. Users of this method do so at their own risk.

REFERENCE:

ASTM Designation: E 809

End of Test (California Test 602 contains 2 pages)